What is claimed is:

1. A process for producing N-acetylneuraminic acid which comprises:
allowing (i) a culture of a microorganism having N-acetylneuraminic acid aldolase activity or N-acetylneuraminic acid synthetase activity, or a treated matter of the culture, (ii) a culture of a microorganism capable of producing pyruvic acid or a treated matter of the culture when a microorganism having N-acetylneuraminic acid aldolase activity is used in (i) above, or a culture of a microorganism capable of producing phosphoenolpyruvic acid or a treated matter of the culture when a microorganism having N-acetylneuraminic acid synthetase activity is used in (i) above, (iii) N-acetylmannosamine, and (iv) an energy source which is necessary for the formation of pyruvic acid or phosphoenolpyruvic acid to be present in an aqueous medium to form and accumulate N-acetylneuraminic acid in the aqueous medium; and
recovering N-acetylneuraminic acid from the aqueous medium.

2. The process according to claim 1, wherein said N-acetylmannosamine is produced by allowing a culture of a microorganism having N-acetylglucosamine 2-epimerase activity or a treated matter of the culture and N-acetylglucosamine to be present in an aqueous medium to form and accumulate N-acetylmannosamine in the aqueous medium.

3. The process according to claim 2, wherein said microorganism having N-acetylglucosamine 2-epimerase activity carries a recombinant DNA composed of a DNA fragment comprising DNA encoding N-acetylglucosamine 2-epimerase and a vector.

SUB C2 4. The process according to claim 3, wherein said DNA encoding N-acetylglucosamine 2-epimerase is DNA derived from a microorganism belonging to the genus Synechocystis.

5. The process according to claim 3 or 4, wherein said DNA encoding N-acetylglucosamine 2-epimerase is selected from the group consisting of:

(a) DNA encoding a protein having the amino acid sequence shown in SEQ ID NO: 1; and

(b) DNA having the nucleotide sequence shown in SEQ ID NO: 2.

6. The process according to ~~any of claims 1-5,~~ Claim 5 wherein said microorganism having N-acetylneuraminic acid aldolase activity is a microorganism belonging to the genus Escherichia or Corynebacterium.

7. The process according to ~~any of claims 1-6~~, Claim 5 wherein said microorganism having N-acetylneuraminic acid synthetase activity is a microorganism belonging to a genus selected from the group consisting of Escherichia, Neisseria and Streptococcus.

8. The process according to ~~any of claims 1-7~~, Claim 5 wherein said microorganism capable of producing pyruvic acid is a microorganism belonging to a genus selected from the group consisting of Escherichia, Corynebacterium and Saccharomyces.

9. The process according to ~~any of claims 1-8~~, Claim 5 wherein said microorganism capable of producing phosphoenolpyruvic acid is a microorganism belonging to a genus selected from the group consisting of Escherichia, Corynebacterium and Saccharomyces.

10. The process according to ~~any of claims 6-9,~~ Claim 6 wherein said microorganism belonging to the genus Escherichia is Escherichia coli.

11. The process according to claim 6, ~~8 or 9,~~ wherein said microorganism belonging to the genus Corynebacterium is

Corynebacterium ammoniagenes, Corynebacterium glutamicum or Corynebacterium acetoacidophilum.

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